Study on intraspecific diversity of Ralstonia solanacearum strains in West Malaysia using whole cell fatty acid analysis

ABSTRACT

Surveys were conducted between the years of 2005 and 2006 at several locations in the northern, central and southern parts of West Malaysia to study the polymorphism of Ralstonia solanacearum strains. These sites included vegetables and farms with known hosts of the pathogen, such as banana, tomato, eggplant, chili and tobacco. Samples were collected from the suspected wilted plants and weeds, including soil and water samples, in selected areas. The bacterium was isolated in all samples using semi-selective tetrazolium chloride medium (TZC). The bacteria strains were detected by using the BIOLOG identification system and were confirmed by nested-PCR. Fatty Acid Methyl Esters (FAME) profiling was performed to determine polymorphism among 58 bacterial isolates. The results showed that the fatty acid composition varied for all R. solanacearum isolates. Grouping of R. solanacearum isolates by fatty acid composition suggested that the existence of distinct groups that were significantly related to host of bacteria but low correlation between fatty acid profiles and biovar or sampling site was detected. A unique FAME profile was found among the strains that have been isolated from banana.

Keyword: Ralstonia solanacearum; Bacterial wilt; FAME; Diversity; West Malaysia